

## **ABSTRACT OF THE DISCLOSURE**

A magnetic pressure sensor device comprises at least one magnetic layer able to vary a magnetisation associated thereto in response to a pressure (P) exerted thereon. The device comprises a plurality of layers arranged in a stack, the magnetic layer able to vary a magnetisation associated thereto in response to a pressure (P) comprising a free magnetic layer, able to be associated to a temporary magnetisation (MT), the free magnetic layer belonging to said plurality of layers, which further comprises at least a spacer layer and a permanent magnetic layer associated to a permanent magnetisation (MP). The sensor device further comprises a compressible layer and a layer with high magnetic coercivity associated to the plurality of layers.